

Title (en)  
TITANIUM ALLOY PRODUCTS AND METHODS FOR THEIR PRODUCTION

Title (de)  
PRODUKTE AUS TITAN-LEGIERUNG UND VERFAHREN ZUR HERSTELLUNG

Title (fr)  
PRODUITS EN ALLIAGE DE TITANE ET PROCEDES DE PREPARATION

Publication  
**EP 0722510 A1 19960724 (EN)**

Application  
**EP 94928452 A 19941004**

Priority  
• GB 9402149 W 19941004  
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Abstract (en)  
[origin: WO9509932A1] A titanium alloy product having good tribological properties without the need to introduce alloy into the surface is produced by casting or casting and forging a titanium alloy consisting of 2 to 15 % by weight silicon or 5 to 15 % by weight nickel, 0 to 7 % by weight of at least one strengthening alloy selected from aluminium, tin, zirconium, vanadium, chromium, manganese, iron, molybdenum and niobium, and 0 to 2 % by weight of a surface improving alloying element selected from boron, carbon, nitrogen, oxygen and zirconium, the balance apart from impurities and incidental ingredients being titanium. Such alloy is then surface treated by surface melting and rapid solidification so as to produce a hard, wear-resistant surface layer without substantially affecting the bulk properties of the alloy. In another aspect, titanium alloy product which is resistant both to rolling contact fatigue and to scuffing comprises casting or casting and forging a titanium alloy which is preferably of the above type, to the required product shape, deep surface hardening the resultant shaped product to a depth greater than 100  $\mu\text{m}$  by localised surface re-melting without further alloying, optionally surface finishing (e.g., by machining, grinding, heat-treating or shot-peening to the required final shape and/or surface finish, and forming on the immediate surface a nitride or oxide or other surface film having a thickness which is not greater than 100  $\mu\text{m}$  and which is resistant to scuffing.

IPC 1-7  
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IPC 8 full level  
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